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IN THE U.S. PATENT AND TRADEMARK OFFICE

In re U.S. Patent Application of:

APPLICANTS: Jarmo Makinen

SERIAL NO.: 09/913,893 FILING DATE: September 21, 2001

EXAMINER: Han, Clemence S ART UNIT: 2616

ATTORNEY'S DOCKET NO.: 879A.0077.U1 (US)

TITLE: Data Transmission Method and Radio Link System

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDED APPELLANT'S BRIEF ON APPEAL

Sir:

This paper is submitted in response to a Notification of Non-Compliant Appeal Brief (37 C.F.R. §41.37) mailed on January 23, 2007 for an Appeal relating to the above-captioned U.S. Patent Application. As this response containing the amended Appeal Brief including a revised Summary and attached copies of evidence is herewith filed within one month from the mailing date of the Notification, no petition for an extension of time or fee is believed to be due. However, should the undersigned agent be mistaken, please consider this a petition for any extension of time that may be required to maintain the pendency of this Appeal, and charge deposit account no. 50-1924 for any required fee deficiency.

Please replace the Appeal Brief with the revised version below.

(1) REAL PARTY IN INTEREST

The real party in interest (RPI) is Nokia Corp of Espoo, Finland; parent company of the Assignee Nokia Mobile Phones, Ltd.

(2) RELATED APPEALS AND INTERFERENCES

There are no other pending appeals or interferences of which the undersigned representative and Applicant/Appellant is aware that will directly affect, be directly affected by or have a bearing on the Board's decision in this appeal.

(3) STATUS OF CLAIMS

Claims 1-13 are pending in this appeal, and are reproduced in an Appendix accompanying this Brief as those claims stood finally rejected by a final Office Action dated July 30, 2007.

This application was filed on September 21, 2001 with nine claims. In response to an Office Action dated January 24, 2005, the Applicant filed an Amendment dated April 25, 2005 amending claims 1-9. In response to a final Office Action dated July 13, 2005, the Applicant filed a Request for Continued Examination dated October 13, 2005 in which claims 1 and 3 were amended, and claims 10 and 11 were added. In response to an Office Action dated October 31, 2005, the Applicant filed an Amendment dated January 31, 2006 amending claims 1-4 and added claim 12. In response to a final Office Action dated May 3, 2006 the Applicant filed an Amendment after Final Rejection dated September 18, 2006 and after entry was denied on October 3, 2006 thereafter filed a Request for Continued Examination on October 17, 2006 in which claims 1, 3, and 12 were amended and claim 13 was added. In response to an Office Action dated February 8, 2007 the Applicant filed

a response dated May 4, 2007 without amending any claims. In response to a final Office Action dated July 30, 2007 the Applicant filed a Notice of Appeal on October 3, 2007. The claims as finally rejected are reproduced in an Appendix hereto (section 8).

(4) STATUS OF AMENDMENTS

No amendment to the claims was proposed or entered subsequent to the final Office Action dated July 30, 2007.

(5) SUMMARY OF THE CLAIMED SUBJECT MATTER

The Applicant notes that the page numbers and Figures referred to in this section are directed to the page numbers and Figures as is found in the PCT Publication WO 00/54434 published on September 14, 2000.

The present invention is directed to avoiding the need for an individual remote terminal that is used within an FDD system to transmit and receive simultaneously, while enabling a base station to practically transmit and receive continuously. As a result, it becomes possible to construct a remote terminal inexpensively, while at the same time the full capacity of a cell becomes maintained. The present invention arranges time slots (e.g., CONTROL, downlink (DL) and uplink (UL)) so that a base station can transmit and receive "full-time", because typically several remote terminals are active at any one time, and it is possible to divide the time between these terminal so that the base station can utilize the entire capacity of an FDD system. Here, the arrangement of the time slots may be performed dynamically, as the need arises. Independent claims relate to a method of a radio link between a central station and at least one substation (claims 1 and 13); a radio link system that discriminates reception signals from transmission signals on a basis of frequency (claim 3); and an apparatus for data transmission (claim 12). Dependent claims

detail specifics as to how the timeslots are controlled for transmission and reception (claim 2); how the time slots are allocated and where the system is located (claims 4-11, of which claim 4 relates to the central stations configured to select timeslots).

As described in the specification the frequency division duplex and the time division duplex system have drawbacks in point-to-multipoint systems implemented in the microwave region. The one disadvantage of the frequency division duplex system is that it requires filters, which are expensive components, (page 3, lines 6-9)

Use of expensive filters may be avoided by means of the time division duplex arrangement mentioned above. However, compared to the frequency division duplex arrangement the time division duplex arrangement has its own disadvantages. Compared to a solution based on separate transmission and reception frequencies, a time division duplex system achieves only half of the transmission rate of the frequency division duplex system, as the time has to be divided between transmission and reception. This disadvantage can be alleviated by using higher data rates but this, in turn, makes the apparatuses more complex since the clock frequency of the data transmission elements must be increased. Furthermore, a time division duplex system is problematic in the rather usual case where the area managed by one central station is divided into separate sectors. In that case the central station will have one transceiver apparatus for each sector. (page 3, line 28 to page 4, line 12).

An object of this invention is to eliminate at least the problems described above. Another object of this invention is to provide a radio link system that is less expensive and easier to implement than prior-art solutions.

Specific to the claims, the elements of method claim 1 are detailed as follows:

transmitting a time division multiplex signal during a first plurality of time slots at a first frequency from the central station (page 4, lines 16-18; page 5, lines 10-28; and Fig. 3);

receiving, at the central station that is configured to transmit and receive simultaneously, signals from said at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal (page 7, lines 10-33; and Fig. 5); and

reserving at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used (page 7, line 5 to page 8, line 12; and Fig. 4).

The data transmission of dependent claim 2 is described at page 7 line 34 to page 8, line 3. The claim recites in plain language and need no further explanation of terms.

Independent method claim 3 is similar to method claim 1, but recites simultaneously transmitting a time division multiplex signal during a first plurality of time slots at a first frequency and receiving a time division multiple access signal during a second plurality of time slots at a second frequency whereas claim 1 recites only transmitting. Support for claim 3 elements may be found in the abstract and at page 4 lines 30-33, page 6 lines 23-25; page 7 line 5 to page 8 line12; and Fig. 4.

The selection of timeslots of dependent claim 4 is described at page 6 lines 10-13, and page 7 lines 26-29; the system location of dependent claims 5-9 are described at page 8 line 34 to page 9 line 19; the uplink and downlink allocation of dependent claims 10-11

are described at page 7 line 34 to page 8 line 8. Each of these claims recites in plain language and need no further explanation of the terms.

Respecting the independent apparatus claim 12, the various elements are supported and described as follows. The transmitter unit 107 and receiver unit 104 are components of the central station 101, as described at page 5 lines 10-29 and shown in Figure 3. The receiver unit 104 arranged to receive signals from at least one substation 102 during a second plurality of time slots at a second frequency as described at page 6 lines 26-29, said second frequency being a different frequency than said first frequency and said signals of said at least one substation 102 at said second frequency forming a time division multiple access signal as described at page 7 lines 5-18; and a processing unit 103 arranged to reserve at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used as described at page 7 line 34 to page 8 line 8; wherein the apparatus is configured to transmit and receive simultaneously as described in the abstract and page 4 lines 30-33.

Regarding independent method claim 13 the various elements are supported and described as follows:

A data transmission method of a radio link system between a central station and at least one substation, (page 5, lines 10-28 and Fig. 3); comprising the steps of:

transmitting a time division multiplex signal during a first plurality of time slots at a first frequency from the central station, (page 5, lines 23-29; page 7, lines 7-10; and Fig. 5); and

receiving, at the central station that is configured to transmit and receive simultaneously, signals from said at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal, (page 7, lines 10-33, Fig. 5).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Issue A. Are claims 1-12 obvious under 35 U.S.C. § 103(a) over Lenzo (U.S. Pat. No. 6,587,444) in view of Papadopoulos (U.S. Pat. No. 5,594,720) and further in view of Magana (U.S. Pat. No. 6,134,227)?

Issue B. Is claim 13 obvious under 35 USC 103(a) over Lenzo in view of Magana?

(7) ARGUMENT

In the arguments below, claims argued separately are deemed not to fall with other claims in the group.

Issue A. Obviousness of Claims 1-12 over Lenzo in view of Papadopoulos and in further view of Magana:

Claim 1: Independent method claim 1 recites in relevant part:

transmitting a time division multiplex signal during a first plurality of time slots at a first frequency from the central station;

receiving, at the central station that is configured to transmit and receive simultaneously, signals from said at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first

frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal; and

reserving at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used.

Independent radio link system claim 3, apparatus claim 12 stands or falls with claim 1.

The Applicant contends that the combination of Lenzo and Magana is clearly improper.

Lenzo relates to a system that utilizes a mixed, or hybrid, division duplex mechanism such that the uplink and downlink transmissions are separated in frequency, while time slots associated with transmission and reception are also separated in time (see col. 2, lines 6-10).

Lenzo discloses a hybrid, frequency-time division duplex (FTDD), conventional time-division duplex (TDD) and frequency-division duplex (FDD) schemes are implemented to enable the production of base stations that can be programmed for use in either TDD or FDD networks (col. 4, lines 41-45). Lenzo states, "data from the base to the terminals is sent on the first carrier during a first half of the frame, and data from the terminals to the base is sent on the second carrier during the remaining half of the frame," (Abstract). Further, Lenzo discloses a system in which the base station transmits data only half of the time and receives data the remaining half of the time, i.e. a system in which the frame structure appears fixed (col. 4, lines 56-61). As a result, in FDD half of the system capacity is seen to be wasted as to data when it operates in the FDD mode.

Lenzo states "an additional, complimentary base station, constructed to transmit when the first base station is receiving and vice versa, can be co-located with the first base station to provide full time and spectral efficiency within a coverage area serviced by the base stations," (Abstract). Lenzo thus appears to disclose that another base station (operating on

the same frequency of the first base station) is used to complement the first base station by reversing the periods that data is transmitted and received.

Lenzo discloses:

> "Furthermore, since uplink and downlink communications are separated in both frequency and time, the disclosed system provides less cross-channel interference as compared to prior art systems. Also, since a single hardware path can be used for both uplink and downlink transmissions at both base stations and terminals, embodiments of the present invention retain the advantages of low cost and power consumption typically associated with conventional time-division duplex systems," (emphasis added), (col. 2, lines 34-42), and
>
> "FIG. 4A depicts a FTDD base station B40 and a FTDD handset M40 communicating according to the TDMA/FTDD scheme of the present invention. As shown, signals transmitted from the FTDD base station B40 to the FTDD handset M40, and those transmitted from the FTDD handset M40 to the FTDD base station B40, are separated in both time and frequency," (emphasis added), (col. 5, lines 49-55), and
>
> "As noted above, since uplink and downlink transmissions occur at separate times, a system utilizing the FTDD scheme of the present invention can be constructed so that the transmit and receive paths in both a base station and a terminal are shared as in a conventional time-division duplex system. As a result, a system constructed according to the invention provides the advantages of relatively low cost and low power consumption. This aspect of the invention is depicted in FIG. 6," (emphasis added), (col. 7, lines 55-64).

The Applicant contends that separating UL and DL communications in both frequency and time is seen as a key feature of Lenzo.

Magana discloses a dual duplex design consisting of a first carrier channel to transmit data in separate time intervals and to receive data and voice over a different second carrier in separate time intervals that coincide with the transmission time intervals (col. 7, lines 14-19). Magana discloses "it can be seen that if a communications unit, such as a cordless handset unit, transmits and receives by the scheme shown in FIG. 4, significantly more information can be passed between units, even though it is being passed over only two channels," (col. 7, lines 25-29).

Thus, Lenzo discloses an UL (uplink) and DL (down link) communications separated both

in time and frequency allowing a single hardware path on both the terminal and the BS (base station), providing less cross-channel interference but unavoidably reducing system capacity by half. Whereas, Magana discloses that a BS can receive and transmit simultaneously over different paths, without reducing system capacity. The Applicant contends that the disclosure in Magana is in clear contradiction to Lenzo. For at least this reason the combination of Lenzo and Magana is seen to be improper.

Further, the Applicant contends that such a combination would clearly require substantial redesign which is an indication that a proposed modification is beyond one of ordinary skill and is improper.

Thus, for at least these reasons stated the Applicant contends that the proposed modification in view of Magana improperly changes the principle of operation of Lenzo.

The Applicant respectfully notes that MPEP 2143.01 recites:

<u>THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE</u>

> "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti,* 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (Claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference relied upon in a rejection based on a combination of references disclosed an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. Patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352)."

The purported combination is seen to require a similar substantial redesign of the elements shown in Lenzo as well as changing its principle of operation.

In addition, Magana describes simultaneous reception and transmission between terminal devices, whereas claim 1 relates to data transmission between a central station and at least one substation.

Magana discloses:

> "Generally, the FDD/TDD approach employs a dual duplex design, i.e., a first carrier channel for transmission of digital signals by two handset units, and a different, second carrier channel for reception of digital communications by the two handset units to a base unit. Over each carrier channel, communications are passed in bursts of distinct time intervals in a time division manner. Such an arrangement allows greater amounts of information, for example, both voice and data, to be simultaneously communicated," and
>
> "Referring again to FIG. 4, in an embodiment of the present invention, transmission of voice (T_x) 4, 6, 7 and transmission of data (T_x) 24 by a first unit occur over a first carrier channel in separate, distinct time intervals. Over a different, second carrier channel, reception of data (R_x) 22 and voice (R_x) 28, 26, 30 occurs over a second carrier channel in separate, distinct time intervals coinciding with the transmission time intervals. In this manner, transmission of voice 4, 6, 7 and reception of data 22 can occur simultaneously and transmission of data 24 and reception of voice 28, 26, 30 can occur simultaneously, each in distinct and different time intervals, over dual carrier frequencies," (emphasis added), (col. 7, lines 3-23).

As detailed in the subject application it is possible to receive and transmit simultaneously on the BS side, while allowing a single hardware path on the terminal side by allocating UL and DL communications for the terminal separated both in time and frequency, which does not result in a loss of system capacity, (page 5, line 30 to page 6, line 13). As such, the Applicant contends that the invention as disclosed in claim 1 is seen to overcome the limitations of Lenzo and Magana and obtain the disclosed benefits of both. But there is no teaching or suggestion in either reference directing one of ordinary skill to the end result.

Further, the Applicant contends that in contrast to Magana, claim 1 is directed to avoiding the need for an individual remote terminal that is used within an FDD system to transmit and receive simultaneously, while enabling a base station to practically transmit and receive continuously. As a result, it becomes possible to construct a remote terminal inexpensively, while at the same time the full capacity of a cell is maintained.

The invention of claim 1 at least relates to arranging time slots (e.g., CONTROL, downlink (DL) and uplink (UL)), so that a base station can transmit and receive "full-time," because typically several remote terminals are active at any one time, and it is possible to divide the time between these terminal so that the base station can utilize the entire capacity of the system. Thus, the arrangement of the time slots may be performed dynamically, as the need arises.

The Applicant notes that in the "Response to Arguments" section of the final Office Action the Examiner states:

> "In page 2-6, the applicant argues that the combination of Lenzo and Magana is not proper because the disclosure in Magana is in clear contradiction to Lenzo (page 4 second paragraph starting with "Thus"). Lenzo teaches UL and DL communications separated both in time and frequency to reduce cost (Column 5 Line 26-30). However, Lenzo's method reduces the system capacity also. Magana teaches transmitting and receiving simultaneously (**Column 7 Line 13-24**). **Lenzo in view of Magana would increase the cost while increasing the system capacity**. Therefore, **it would be a design choice between a system with higher cost and higher capacity and another system with lower cost and lower capacity. A person skilled in the art <u>might</u> modify Lenzo in view of Magana in order to achieve higher system capacity in spite of resulting higher cost**," (emphasis added).

The Applicant notes that the Examiner appears to state that combining Lenzo in view Magana would merely be a design choice. The Applicant contends that the threshold question here is more than a simple design choice. What is required for obviousness is that the references teach one of ordinary skill to make the claimed invention. Reducing this to a mere design choice glosses over the constraint of not changing the references principle of operation. The Applicant respectfully notes that the Examiner has <u>never</u> addressed this point.

The Applicant contends that if a person skilled in the art had a desire to produce a higher system capacity in Lenzo, in spite of a resulting higher cost as indicated by the Examiner, the person skilled in the art would achieve his goal using prior art schemes already disclosed by Lenzo in figures 2a, 2b or 3a, 3b. The Applicant contends that for at least the reasons stated a person skilled in the art, with a desire to get a higher system capacity as

stated by the Examiner, would not be motivated to modify the disclosure in Lenzo with the disclosure in Magana for at least the reason that these references are seen to be in contradiction with one another.

Further, the Applicant respectfully notes that the Examiner states "A person skilled in the art might modify Lenzo in view of Magana [...] " The Applicant contends that the selective use of the term "might" is seen as a further indication of an improper combination as stated above.

Moreover, regarding the modification of Lenzo in view of Papadopoulos as stated by the Examiner in the rejection of claim 1, the Applicant contends that there are several distinctions between Papadopoulos and claim 1 which are seen to render the rejection improper.

In the final Office Action the Examiner states:

> "Lenzo, however, does not teach reserving at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used. **Papadopoulos teaches reserving at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation** (Column 8 Line 3-5, Column 7 Line 11-14), said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used (Column 2 Line 43, Figure 8B)," (emphasis added).

The Applicant notes that the Examiner appears to equate Papadopoulos to **reserving** uplink and downlink time slots according to traffic capacity needs as in claim 1. As cited Papadopoulos discloses "the STDD techniques of the present invention allow time slots to be dynamically **allocated** to either uplink or downlink transmission **depending on demand**," (emphasis added), (col. 8, lines 2-5). The Applicant argues that in Papadopoulos **only a portion** of the time slots are **dynamically allocated** to uplink and downlink communication **depending on demand**, while a remaining, mainly fixed amount, of time slots are assigned to uplink and downlink communication (Abstract).

Papadopoulos relates to reducing the interference between frame time slots as the interference may increase a packet-drop rate and thereby reduce system capacity (col 8, lines 13-24). However, the Applicant contends that Papadopoulos does not disclose or suggest that time slots **are reserved for a substation needing more traffic capacity than another substation** as in claim 1. The Applicant notes that a resulting feature of the invention as described in claim 1 is a "balancing" of traffic capacity between substations. As seen to be contrary to claim 1 Papadopoulos discloses that a portion of time slots are allocated to decrease the interference and thereby increase system capacity. The Applicant notes that Papadopoulos does not appear to relate to balancing traffic capacity between substations. Further, the Applicant contends that Papadopoulos can not be seen to disclose or suggest **reserving** time slots for a substation needing more traffic capacity than another substation as in claim 1. Rather, Papadopoulos is seen to teach away from reserving timeslots for a substation needing more capacity than another substation which results in "balancing" traffic capacity between substations as relating to claim 1.

For at least the reasons stated the Applicant contends that it would not be obvious to a person skilled in the art to modify Lenzo in view of Papadopoulos such that time slots are reserved for the substation needing more traffic capacity than another substation as in claim 1.

Furthermore, as cited by the Examiner in a previous Office Action, Papadopoulos discloses that dynamic slot-direction frame organization may be used to improve capacity (col. 16, lines 1-3). The Applicant notes that as cited in the final Office Action Figure 8B in Papadopoulos illustrates a slot-direction frame organization. The Applicant notes that it can be seen in Figure 8B of Papadopoulos that an additional portion 856 of a frame 850 includes slots **which are not allocated** to either uplink or downlink communication (col. 10, lines 42-45). Consequently, Papadopoulos can not be seen to disclose or suggest that **there is reserved** at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than another substation as in claim 1. On the contrary, Papadopoulos is seen to teach away from claim 1 at least where Papadopoulos discloses dynamically allocating slots of a distinct portion (856) on demand, where the portion (856) is separate from the uplink (852) and

downlink (854) portions of the frame (850) as illustrated in Figure 8B (col. 10, lines 41-47).

For at least the reasons already stated the Applicant contends that a person skilled in the art would not modify Lenzo in view of Papadopoulos and in further view of Magana in the manner suggested by the Examiner. In addition, the Applicant contends that such a combination would still not disclose claim 1. Further, the Applicant respectfully contends that the reasoning that a person skilled in the art would modify Lenzo in view of Magana to transmit and receive simultaneously was made in hindsight and is prohibited by MPEP 2143.01 and case law cited above.

Issue B. OBVIOUSNESS OF CLAIM 13 OVER LENZO IN VIEW OF MAGANA:

Claim 13: Independent method claim 13 recites in relevant part:

transmitting a time division multiplex signal during a first plurality of time slots at a first frequency from the central station; and

receiving, at the central station that is configured to transmit and receive simultaneously, signals from said at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal.

Independent radio link system claim 13 stands or falls with claim 1.

The Applicant notes that claim 13 recites similar features of claim 1 as stated above. The Applicant contends that claim 13, similarly, can not be seen as obvious over Lenzo in view of Magana. As stated Lenzo discloses an UL (uplink) and DL (down link) communications separated both in time and frequency allowing a single hardware path on both the terminal and the BS (base station), whereas, Magana discloses that a BS can receive and transmit simultaneously over different paths, without reducing system capacity. For at least the reasons already stated the Applicant contends that Magana is in

clear contradiction to Lenzo. Further, for at least the reasons already stated the Applicant contends that the combination of Lenzo and Magana is seen to be improper. Thus, the rejection of claim 13 over Lenzo in view of Magana should be removed.

Pursuant to 35 USC 41.37, a CLAIMS APPENDIX, EVIDENCE APPENDIX, and RELATED PROCEEDINGS APPENDIX follow the certificate of mailing below.

For at least the above reasons, the Appellants contend that Lenzo, Papadopoulos, and the Magana reference, alone or in combination with one another or ordinary skill in the art, anticipate or render obvious any of the thirteen claims argued above. The Appellants respectfully requests the Board reverse the final rejection in the Office Action of July 30, 2007, and further that the Board rule that the pending claims are patentable over the cited art.

Respectfully submitted:

HARRINGTON & SMITH, PC

2/13/08

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Appl. No. 09/913,893
Appeal Brief dated December 12, 2007

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Ann Okrentowich
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(8) CLAIMS APPENDIX

1. (Previously Presented) A data transmission method of a radio link system between a central station and at least one substation, comprising the steps of:

transmitting a time division multiplex signal during a first plurality of time slots at a first frequency from the central station;

receiving, at the central station that is configured to transmit and receive simultaneously, signals from said at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal; and

reserving at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used.

2. (Previously Presented) The data transmission method of claim 1, wherein the central station controls the time slots used for transmission and reception by the substations.

3. (Previously Presented) A radio link system, comprising:

a central station comprising means for discriminating reception signals from transmission signals on a basis of frequency; and

at least one substation;

wherein the central station is configured so as to simultaneously transmit a time division multiplex signal during a first plurality of time slots at a first frequency and receive a

time division multiple access signal during a second plurality of time slots at a second frequency;

wherein the at least one substation is configured so as to receive signals at said first frequency during the first plurality of time slots and said at least one substation is arranged to transmit signals at said second frequency during the second plurality of time slots, said second frequency being a different frequency than said first frequency and said signals transmitted by said at least one substation at said second frequency being arranged to form said time division multiple access signal; and

wherein the central station is configured to reserve at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used.

4. (Previously Presented) The radio link system of claim 3, wherein the central station is configured to select said first and second plurality of time slots.

5. (Previously presented) The radio link system of claim 3, wherein the system is located in a GSM mobile communication system.

6. (Previously presented) The radio link system of claim 3, wherein the system is located in a UMTS mobile communication system.

7. (Previously presented) The radio link system of claim 3, wherein the system is located in a broadband data transmission system.

8. (Previously presented) The radio link system of claim 7, wherein the system is located in a LMDS system.

9. (Previously presented) The radio link system of claim 7, wherein the system is located in a HiperAccess system.

10. (Previously Presented) The method of claim 1, wherein uplink and downlink time slots are allocated according to traffic needs.

11. (Previously Presented) The radio link system of claim 3, wherein uplink and downlink time slots are allocated according to traffic needs.

12. (Previously Presented) An apparatus for data transmission, comprising:

a transmitter unit arranged to transmit a time division multiplex signal during a first plurality of time slots at a first frequency;

a receiver unit arranged to receive signals from at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal; and

a processing unit arranged to reserve at least one time slot from said first plurality of time slots or said second plurality of time slots for said at least one substation needing more traffic capacity than at least one second substation, said first plurality of time slots being different than said second plurality of time slots and substantially all time slots being used;

wherein the apparatus is configured to transmit and receive simultaneously.

13. (Previously Presented) A data transmission method of a radio link system between a central station and at least one substation, comprising the steps of:

transmitting a time division multiplex signal during a first plurality of time slots at a first frequency from the central station; and

receiving, at the central station that is configured to transmit and receive simultaneously, signals from said at least one substation during a second plurality of time slots at a second frequency, said second frequency being a different frequency than said first frequency and said signals of said at least one substation at said second frequency forming a time division multiple access signal.

END OF CLAIMS

(9) EVIDENCE APPENDIX

Attached please find copies of the Lenzo, Papadopoulos, and Magana references relied upon by the Examiner in the final rejection.

(10) RELATED PROCEEDINGS APPENDIX

Section (2) above recites that there are no related proceedings, so this appendix is intentionally left blank.